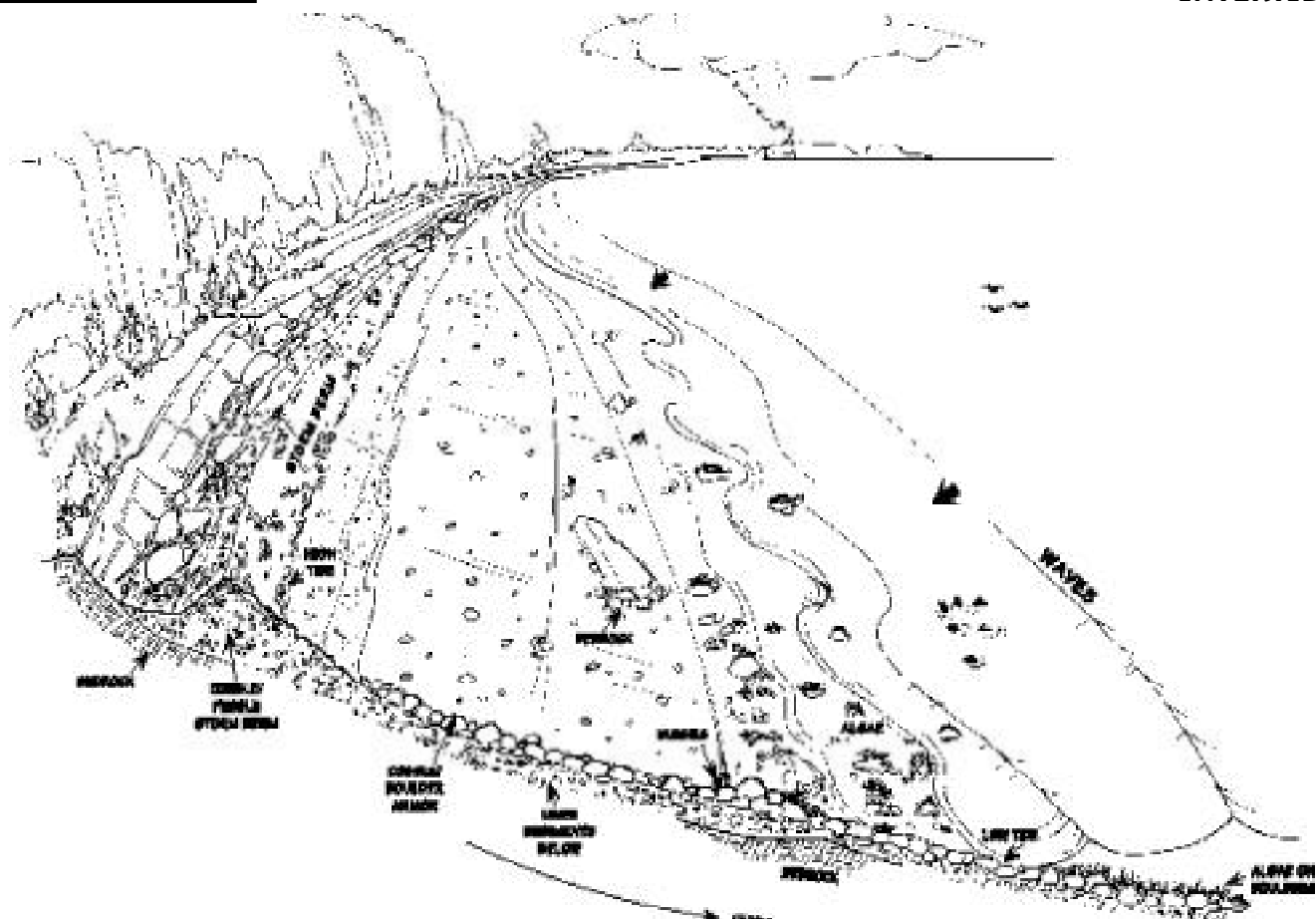


Gravel Beaches

INTERTIDAL



Description

- Gravel beaches can be very steep, with multiple wave-built berms forming the upper beach.
- The degree of exposure to wave energy can be highly variable among gravel beaches.
- Density of animals and plants in the upper intertidal zone is low on exposed beaches, but can be high on sheltered gravel beaches and on the lower intertidal zone of all beaches.

Predicted Oil Behavior

- Stranded oil is likely to penetrate deeply into gravel beaches because of their high permeability.
- Long-term persistence will be controlled by the depth of routine reworking by the waves.
- Along sheltered portions of the shorelines, chronic sheening and the formation of asphalt pavements is likely where accumulations are heavy.

Response Considerations

- Heavy accumulations of pooled oil should be removed quickly from the upper beach.
- All oiled debris should be removed.
- Sediment removal should be limited as much as possible.
- Low- to high-pressure flushing can be effective if all released oil is recovered with skimmers or sorbents.
- Mechanical reworking of oiled sediments from the high-tide line to the lower beachface can be effective in areas regularly exposed to wave activity; the presence of multiple storm berms is evidence of wave activity.
- In-place tilling may be used to reach deeply buried oil layers along the mid-tide zone on exposed beaches.

	Response Method	Oil Category				
		I	II	III	IV	V
Oil Category Descriptions I – Gasoline products II – Diesel-like products and light crudes III – Medium grade crudes and intermediate products IV – Heavy crudes and residual products V – Non-floating oil products The following categories are used to compare the relative environmental impact of each response method in the specific environment and habitat for each oil type. The codes in each table mean: A = The least adverse habitat impact. B = Some adverse habitat impact. C = Significant adverse habitat impact. D = The most adverse habitat impact. I = Insufficient information - impact or effectiveness of the method could not be evaluated. — = Not applicable.	Natural Recovery	A	A	B	B	B
	Barriers/Berms	—	B	B	B	B
	Manual Oil Removal/Cleaning	D	C	B	B	A
	Mechanical Oil Removal	D	D	C	C	C
	Sorbents	—	A	A	B	B
	Vacuum	—	—	B	B	B
	Debris Removal	—	A	A	A	A
	Sediment Reworking/Tilling	D	B	B	B	B
	Vegetation Cutting/Removal	—	—	—	—	—
	Flooding (deluge)	A	A	B	C	C
	Low-pressure, Ambient Water Flushing	A	A	A	B	C
	High-pressure, Ambient Water Flushing	—	—	B	B	B
	Low-pressure, Hot Water Flushing	—	—	C	B	B
	High-pressure, Hot Water Flushing	—	—	C	C	C
	Steam Cleaning	—	—	D	D	D
	Sand Blasting	—	—	—	—	—
	Solidifiers	—	—	B	—	—
	Shoreline Cleaning Agents	—	—	B	B	B
	Nutrient Enrichment	—	A	A	B	B
	Natural Microbe Seeding	—	I	I	I	I
	In-situ Burning	—	—	C	C	C

Consult the *Environmental Considerations for Marine Oil Spill Response* document referenced on page 5 before using this table.